CONTENTS OF VOLUME 49

PART 1 (March 1993)

Statistical models for prevalent cohort data ..... M.-C. Wang, R. Brookmeyer, and N. P. Jewell 1
Analyzing doubly censored data with covariates, with application to AIDS
M. Y. Kim, V. G. De Gruttola, and S. W. Lagakos 13
On the design and analysis of randomized clinical trials with multiple endpoints
D.-I. Tang, N. L. Geller, and S. J. Pocock 23
Sequential equivalence testing and repeated confidence intervals, with applications to normal and binary responses ..... C. Jennison and B. W. Turnbull 31
Exact tests for variance components in unbalanced mixed linear models ..... J. Öfversten 45
Some simple methods for estimating intraindividual variability in nonlinear mixed effects models
M. Davidian and D. M. Giltinan 59
Repeated measurement designs with random selections ..... L. L. Laster and J. Pickands III 75
Testing for the existence of a desirable dose combination
H. M. J. Hung, G. Y. H. Chi, and R. J. Lipicky 85
Nonlinear statistical models for the joint action of toxins
C. N. Barton, R. C. Braunberg, and L. Friedman 95
Modelling overdispersion in toxicoiogical mortality data grouped over time
R. J. O'Hara Hines and J. F. Lawless 107
Test for interaction between treatment and stratum with ordinal responses ..... H. Uesaka 123
Quasi-symmetric latent class models, with application to rater agreement ..... A. Agresti and J. B. Lang 131
Estimation of the size distribution of closed cell elements from analysis of their random plane sections
D. A. Rusakov 141
Statistical testing of genetic linkage under heterogeneity ..... M. M. Shoukri and G. M. Lathrop 151
On the irreducibility of a Markov chain defined on a space of genotype configurations by a sampling scheme ..... N. Sheehan and A. Thomas 163
Estimating migration rates using tag-recovery data
C. J. Schwarz, J. F. Schweigert, and A. N. Arnason 177
Negative binomial cross-tabulations, with applications to abundance data
V. Ramakrishnan and D. Meeter 195
A plant–capture method for estimating the size of a population from a single sample
E. M. Laska and M. Meisner 209
Shorter Communications
REML estimation for survival models with frailty ..... C. A. McGilchrist 221
Maximum likelihood in a generalized linear finite mixture model by using the EM algorithm
R. C. Jansen 227
An exact analysis of conditional independence in several 2×2 contingency tables
Q. Yao and D. Tritchler 233
A gamma model for extra-binomial variation in dilution assays ..... T. J. O'Neill and H. C. O'Neill 237
A structured compartmental model for drug kinetics ..... M. J. Faddy 243
The Consultant's Forum
Constrained randomization in a therapeutic efficacy trial
R. N. Tamura, B. J. Mills, and J. K. Lovelace 249
Statistical analysis of animal cancer chemoprevention experiments
L. S. Freedman, D. N. Midthune, C. C. Brown, V. Steele, and G. J. Kelloff 259
Analysis of embryonic development with a model for under- or overdispersion relative to binomial variation ..... B. Engel and J. te Brake 269
Shrinkage estimators applied to prediction of French winter wheat yield
P. Hébel, R. Faivre, B. Goffinet, and D. Wallach 281
Stratified double sampling of patchy vegetation to estimate biomass
W. R. Catchpole and E. A. Catchpole 295
Reader Reaction: Modifying the t test for assessing the correlation between two spatial processes
P. Dutilleul 305
Response ..... P. Clifford, S. Richardson, and D. Hémon 312
Correspondence 315
Book Reviews 317
Papers to be published 323

PART 2 (June 1993)

Optimum experimental designs for properties of a compartmental model
A. C. Atkinson, K. Chaloner, A. M. Herzberg, and J. Juritz 325
t-REML for robust heteroscedastic regression analysis of mitochondrial power
A. T. James, J. T. Wiskich, and R. A. J. Conyers 339
An index of tumorigenic potency ..... A. J. Bailer and C. J. Portier 357
A Weibull model for the estimation of tumorigenic potency
A. Dewanji, D. Krewski, and M. J. Goddard 367
Regression analysis of grouped survival data: Informative censoring and double sampling
S. G. Baker, Y. Wax, and B. H. Patterson 379
Selection designs for pilot studies based on survival ..... P. Y. Liu, S. Dahlberg, and J. Crowley 391
Evaluating constraints that allow survival-adjusted incidence analyses in single-sacrifice studies
G. E. Dinse 399
Estimation of two ordered mean residual lifetime functions ..... N. Ebrahimi 409
Epidemiologic assessment of risks of adverse reactions associated with intermittent exposure
U. Feldmann 419
Conditional regression analysis of the exposure–disease odds ratio using known probability-of-exposure values ..... G. A. Satten and L. L. Kupper 429
Random-effects models for longitudinal data using Gibbs sampling
W. R. Gilks, C. C. Wang, B. Yvonnet, and P. Coursaget 441
Nonparametric procedures for comparing umbrella pattern treatment effects with a control in a one-way layout ..... Y.-I. Chen and D. A. Wolfe 455
Qualitative interactions in multifactor studies ..... E. Russek-Cohen and R. M. Simon 467
The contribution of individual variables to Hotelling's T^2, Wilks' Λ, and R^2 ..... A. C. Rencher 479
Confidence intervals for the relative frequency of responding cells in limiting dilution assays
L. Cyr, P. F. Rust, J. R. Peters, M. K. Schmehl, and H. L. Bank 491
Modeling the Ames *Salmonella*/microsome assay
D. Krewski, B. G. Leroux, S. R. Bleuer, and L. H. Broekhoven 499
Fixed-distance latent class models for the analysis of sets of two-way contingency tables
A. K. Formann 511
Interval estimation under two study designs for kappa with binary classifications
C. A. Hale and J. L. Fleiss 523
Higher-order kappa-type statistics for a dichotomous attribute in multiple ratings ..... T. Lau 535
Phylogenetic inference: Linear invariants and maximum likelihood
W. C. Navidi, G. A. Churchill, and A. von Haeseler 543
On the covariance between parameter estimates in models of twin data ..... C. J. Williams 557
A test of hypothesis on familial correlations ..... R. S. Katapa 569
A stochastic model for the sterile male technique ..... E. K. Kimanani and J. W. Odhiambo 577
Shorter Communications
Improving the EM algorithm ..... S. N. Rai and D. E. Matthews 587
Nonparametric estimation of relative mortality from nested case–control studies
Ø. Borgan and B. Langholz 593
Nonparametric estimation for the difference or ratio of median failure times
J. Q. Su and L. J. Wei 603
Power and sample size calculations for exact conditional tests with ordered categorical data
J. F. Hilton and C. R. Mehta 609
An application of the truncated Poisson distribution to immunogold assay
J. N. S. Matthews and D. R. Appleton 617
The Consultant's Forum
Case studies in binary dispersion ..... K.-Y. Liang and P. McCullagh 623
A test of the missing data mechanism for repeated categorical data ..... T. Park and C. S. Davis 631
Comparing proportions in the presence of false positive and false negative instrument sorting errors ..... D. V. Lakshmi and W. K. Smith 639
Mixture estimation and the neurophysiological quantal hypothesis ..... B. R. Smith 643
Estimation of bole surface area and bark volume with Monte Carlo methods
T. G. Gregoire, H. T. Valentine, and G. M. Furnival 653
Reader Reaction: Choice of prediction estimator in censored regression models ..... M. Feingold 661
Response ..... G. Heller and J. S. Simonoff 664
Reader Reaction: A comment on "A simple test for neglected heterogeneity in panel studies"
C. Orme 665
Response ..... A. Hamerle 667
Correspondence 669
Book Reviews 671
Papers to be published 675

PART 3 (September 1993)

REML estimation with exact covariance in the logistic mixed model
M. L. Drum and P. McCullagh 677
REML estimation in unbalanced multivariate variance components models using an EM algorithm ..... J. A. Calvin 691
Estimating treatment means in a mixed-effect ANOVA model for bioequivalence studies
F. C. Hsuan 703
A robust approach to the analysis of repeated measures ..... R. M. Huggins 715
Proportional hazards model for repeated measures with monotonic ordinal response
M. D. Thornquist 721
A proportional hazards model for truncated AIDS data
D. M. Finkelstein, D. F. Moore, and D. A. Schoenfeld 731
Group sequential tests for bivariate response: Interim analyses of clinical trials with both efficacy and safety endpoints ..... C. Jennison and B. W. Turnbull 741
A multiple-step selection procedure with sequential protection of preferred treatments
T. T. Chen and R. Simon 753
Optimization of multistage testing times and critical values in clinical trials
E. H. Brittain and K. R. Bailey 763
Sample size determination for cohort studies under an exponential covariate model with grouped data
K.-J. Lui 773
An evaluation of some methods for fitting dose–response models to quantal-response developmental toxicology data ..... G. J. Carr and C. J. Portier 779
Ratio estimates, the delta method, and quantal response tests for increased carcinogenicity
G. S. Bieler and R. L. Williams 793
Model-based Gaussian and non-Gaussian clustering ..... J. D. Banfield and A. E. Raftery 803
A latent trait finite mixture model for the analysis of rating agreement
J. S. Uebersax and W. M. Grove 823
Nonparametric estimators for variable circular plot surveys ..... P. X. Quang 837
A constrained Cook–Jacobson model of visibility bias ..... M. A. Evans and D. G. Bonett 853
Shorter Communications
A note on pooling Kaplan–Meier estimators ..... C. Srinivasan and M. Zhou 861
Maximum likelihood estimation of the attributable fraction from logistic models
S. Greenland and K. Drescher 865
Sample size determination for multiple continuous risk factors in case–control studies ..... K.-J. Lui 873
A log-rank test for equivalence of two survivor functions ..... S. Wellek 877
Diagonals-parameter symmetry model for cumulative probabilities in square contingency tables with ordered categories ..... S. Tomizawa 883
A deviance residual for heterogeneous spatial Poisson processes ..... A. B. Lawson 889
Estimating three-dimensional line process densities from tube counts
G. W. Horgan, S. T. Buckland, and L. A. Mackie-Dawson 899
The Consultant's Forum
Where is the likelihood ratio test powerful for detecting two component normal mixtures?
N. R. Mendell, S. J. Finch, and H. C. Thode, Jr. 907
A measure of tumorigenic potency incorporating dose–response shape
K. L. Meier, A. J. Bailer, and C. J. Portier 917
Application of generalized estimating equations to a study of *in vitro* radiation sensitivity
J. B. Cologne, R. L. Carter, S. Fujita, and S. Ban 927
Reader Reaction: A note on the operating characteristics of the modified *F* test
R. C. Blair and S. Sawilowsky 935
Response ..... C. Brownie, D. D. Boos, and J. Hughes-Oliver 939
Reader Reaction: On adjusting *P*-values for multiplicity ..... P. H. Westfall and S. S. Young 941
Response ..... S. P. Wright 944
Correspondence 947
Book Reviews 955
Obituary: Arthur Linder 961
Correction 967
Papers to be published 969
The Biometric Society 971

PART 4 (December 1993)

Global tests for multiple binary outcomes ..... M. Lefkopoulou and L. Ryan 975
Estimation efficiency and tests of covariate effects with clustered binary data ..... J. M. Neuhaus 989
Marginal modeling of binary cross-over data ..... M. P. Becker and C. C. Balagtas 997

Estimating incidence and diagnostic error rates for bivariate progressive processes
M. A. Espeland, J. T. Rushing, and A. DeVault 1010
Size and power of two-sample tests of repeated measures data . . . . . J. D. Dawson and S. W. Lagakos 1022
The analysis of longitudinal polytomous data: Generalized estimating equations and connections with weighted least squares . . . . . M. E. Miller, C. S. Davis, and J. R. Landis 1033
Bayesian predictive inference for longitudinal sample surveys . . . . . B. Nandram and J. Sedransk 1045
Regression dilution in the proportional hazards model . . . . . M. D. Hughes 1056
A specification test for univariate and multivariate proportional hazards models
R. Crouchley and A. Pickles 1067
The power of the Mantel–Haenszel test for grouped failure time data . . . . . S. Wallenstein and J. Wittes 1077
Criteria to represent groups in the plane when the grouping is known
G. Eslava-Gomez and F. H. C. Marriott 1088
Ignorability and coarse data: Some biomedical examples . . . . . D. F. Heitjan 1099
Analysis of infectious disease data from partner studies with unknown source of infection
L. Magder and R. Brookmeyer 1110
Small-sample confidence sets for the MTD in a Phase I clinical trial . . . . . B. E. Storer 1117
Using historical controls in the analysis of developmental toxicity data . . . . . L. Ryan 1126
A generalized one-hit model for bioassays of insect viruses
M. S. Ridout, J. S. Fenlon, and P. R. Hughes 1136
Analyse des correspondances de données planifiées: Etude de la chémotaxie de la larve infestante d'un parasite . . . . . L. Fraile, Y. Escoufier, et A. Raibaut 1142
Regression of genotypic on phenotypic value of a ratio-defined character . . H. Iwaisaki and J. W. Wilton 1154
Weighted nest survival models . . . . . J. F. Bromaghin and L. L. McDonald 1164
Capture–recapture studies for multiple strata including non-Markovian transitions
C. Brownie, J. E. Hines, J. D. Nichols, K. H. Pollock, and J. B. Hestbeck 1173
Variances of mark–recapture estimates . . . . . R. M. Cormack 1188
Modeling heterogeneity in survival rates of banded waterfowl . . . . . K. P. Burnham and E. A. Rexstad 1194
A note on the line intercept sampling method . . . . . H. A. Muttlak and S. M. Sadooghi-Alvandi 1209
Shorter Communications
A simple generalization of the O'Brien and Fleming group sequential test procedure to more than two treatment groups . . . . . K.-J. Lui 1216
A test for linear trend in constant hazards and its application to a problem in occupational health
C. T. Le 1220
An improvement on commonly used tests in bioequivalence assessment . . . . . A. Munk 1225
Effects of misspecification of the propensity score on estimators of treatment effect . . . . . C. Drake 1231
Analyse de la liaison entre un processus de galeries et la fissuration d'un sol
J. Chadœuf, A. Kretzschmar, M. Goulard, et K. Smettem 1237
Asymptotic moments and distribution of nearest marker distances when major genes and marker polymorphisms are unevenly distributed . . . . . J. A. Woolliams, C. S. Haley, and K. Lange 1245
The Consultant's Forum
A catalogue of efficient neighbour-designs with border plots . J.-M. Azaïs, R. A. Bailey, and H. Monod 1252
Some effects of ignoring correlated measurement errors in straight line regression and prediction
G. B. Schaalje and R. A. Butts 1262
Reader Reaction: Bootstrap hypothesis testing procedures . . . . . H. Becher 1268
Response . . . . . P. Hall and S. R. Wilson 1271
Consultant's Forum guidelines 1273
Correspondence 1275
Book Reviews 1281
Obituary: F. N. David . . . . . J. Utts 1289
Papers to be published 1293
Acknowledgements 1295
The Biometric Society 1296